



## **Dancing for health: A service evaluation of a dance class for survivors of acquired brain injury and stroke**

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### **Introduction**

Approximately 12.5 million people in England are living with a long term neurological condition such as stroke or other acquired brain injuries (ABI), multiple sclerosis (MS) and Parkinson's disease.<sup>1</sup> Statistics suggest that around 350,000 people are admitted to hospital each year with ABI and numbers are rising.<sup>2</sup> It is recognised that people living with the disabling effects of neurological conditions are significantly less active than the general population<sup>3,4,5,6</sup> and are therefore at high risk of secondary complications of inactivity.<sup>5,7,8,9</sup> The barriers to accessing exercise for people with neurological conditions are well evidenced.<sup>10,11,12,13</sup> With a growing population of people with long term neurological disabilities and limited healthcare resources, opportunities for maintenance of physical activity outside of formal physiotherapy and rehabilitation services is required.<sup>14,15</sup>

Exercise and physical activity for people living with neurological disabilities and specifically stroke and ABI is now well established to be safe<sup>6,16,17,18</sup> and offer many potential benefits.<sup>6,16,17,18</sup> In recent years dance as an exercise intervention has received much research interest. Keogh et al (2009) published a systematic review of the physical benefits of dance for healthy older people. The 18 studies included suggest that older adults can significantly improve their aerobic power, lower body muscle endurance, strength and flexibility, balance, agility, and gait through dancing.<sup>19</sup> There is a much smaller evidence base for dance for neurological populations. A small study of an aerobic dance intervention for survivors of traumatic brain injury to improve balance and coordination found statistically significant improvements in coordination interpreted through temporal delay in movement in the study group.<sup>20</sup> Balance testing using a force platform also indicated a significant reduction in postural sway area in the study group.<sup>20</sup> A pilot study found that a dance

class offered to patients receiving treatment in a subacute stroke unit was both feasible and well tolerated and enjoyed by the stroke survivors.<sup>21</sup> A single case study of Tango dance in chronic stroke suggests improvements in balance, endurance and dual task ability.<sup>22</sup> Two studies have investigated Tango dance as an intervention for Parkinson's disease with benefits including improved balance, walking distance and stride length.<sup>23,24</sup> These two, amongst other dance intervention studies, are included in the Cochrane review of physical therapy for Parkinson's.<sup>25</sup> Dance for Parkinson's is arguably the best known use of dance as a therapeutic form of exercise for a neurological population with classes readily available in the community.

Dance classes for people with ABI and stroke are not similarly available. The opportunity arose for the Learning and Participation (Dance) team at Trinity Laban Conservatoire of Music and Dance to develop a community based dance class for people with ABI in collaboration with Headway Southeast London, the brain injuries charity, and Kings College Hospital. By collaborating with Kings College clinical specialist staff and with specialist neurological physiotherapists a range of outcome measures were selected to explore the accessibility and impact of this community dance class for the participants who attended. This report is a service evaluation of that class.

## **Aims**

The aim of this service evaluation is to explore the feasibility and possible benefits of attending a community based dance class for participants who are living with the effects of ABI or stroke.

## **Objectives**

The objectives are:

- To explore the experiences of people with ABI or stroke participating in a dance class in the community
- To explore the potential benefits that people with ABI may realise as a result of participating in a dance class



- To explore the measurement tools that may best capture these potential benefits

## Methods

The dance class:

A weekly creative dance class was developed as a collaboration between Trinity Laban Conservatoire of Music and Dance Learning and Participation department, Headway Southeast London and Kings College Hospital. The class takes place in a dance studio at the Laban building in Deptford. Seven terms of classes of approximately 10 classes per term have taken place. This service evaluation considers data from the first five terms.

## The participants

The class is offered for adult survivors of ABI or stroke. Initially attended by members of Headway, participants have subsequently been referred by Kings College Hospital, physiotherapists, GPs and by self-referral.

## The staff

The class is taught by one of Trinity Laban's trained dance artists. Support is provided by teaching assistants who are themselves training at Trinity Laban. Trinity Laban Learning and Participation (Dance) offer a distinct approach to Dance and Health work. They are not Dance Therapists. The strength of their offer is in the high-quality and sensitive delivery of the art form which is adapted to be accessible for any person despite age or ability, adding value to inpatient, outpatient and social care, in a range of contexts. Their practice is not driven by therapeutic aims, but the very nature of creative dance means that participants are physically, emotionally and creatively engaged – factors which are suggested to support good physical and mental health and wellbeing. A physiotherapist with specialist knowledge of ABI and stroke is present at every class to support both the teachers and the participants. Support workers, staff from Headway, relatives and carers of participants are encouraged to participate and provide support during the class.



## Outcome measures

Each participant completes a PAR-Q+ pre-exercise health questionnaire to confirm that they are safe to participate. Outcome measures and questionnaires were selected and developed to explore both the accessibility and impact of the class for each participant. These measures are: SF-36 a measure of health related quality of life, the Trinity Laban Learning and Participation Department evaluation form (TL evaluation), a devised questionnaire administered pre and post term and focus groups held at the conclusion of the fifth term of classes.

## Results

Quantitative results:

Data from five terms of dance classes were analysed. Forty-one survivors of ABI or stroke participated over those five terms. Some participants attended for only a few classes or parts of terms while others attended regularly. Reasons for not attending included: admission for further rehab, too far to travel to get to class regularly, returning to employment which clashed with class time and exacerbation of other co-morbidities. Two participants progressed to other regular dance classes at Trinity Laban. The outcome measures, in particular the post term measures, were not completed by all of the participants. Thirteen participants attended for 2 or more terms. An average class had between 8 and 15 participants.

SF-36 results:

Pre and post term SF-36 forms were completed by 14 participants over the 5 terms. In some cases these were completed by the same participant in more than one term so there were not necessarily 14 different individuals. In the pre term results the physical component summary showed 43% of participants had scores below the general population norm while on the mental component summary 64% had scores below the general population norm. Large percentages of participants were below general population norms on all of the mental component scores. The results did not suggest a significant change between pre and post term scores.

## Qualitative results:

The qualitative evaluation was based on the findings from three data sources: the TL evaluation completed by participants at the end of each of the five terms, the devised questionnaire completed by participants pre and post each of the same five terms and the focus group discussions undertaken at the conclusion of the fifth term.

The data was examined across three themes:

- Health, well-being and social impact
- Artistic quality and creative engagement
- Access and progression

## Health and Well-being

In the Trinity Laban evaluation survey, participants were extremely positive about the impact of sessions on their health and well-being. In answer to the question 'How would you rate the physical impact of attending the class on a scale of 1 – 5 (where 1 is no impact at all and 5 is a huge impact on your physical health)?', 100% of participants offered a positive rating of either '4' or '5'.

The physio evaluation form asked participants about a series of specific health and wellbeing outcomes since taking part in the programme, with the following findings:

- 43% reported weight loss
- 86% reported improved fitness since taking part in the programme
- 43% reported that their consumption of fruit and veg had increased.

In focus group discussions, a number of other positive health outcomes during the sessions were outlined by participants, including:

*'Keeps your motor skills going and allows you stretch your abilities'*

*'Makes me strong'*

Health outcomes following the sessions included a number of reported benefits such as improved balance, enhanced strength and increased energy.

In terms of psychological well-being, responses to the Trinity Laban evaluation survey were similarly positive. In answer to the question 'How would you rate the impact of attending the class to your psychological well-being on a scale of 1 – 5



(where 1 is no impact at all and 5 is a huge impact on your well-being)?', 89% offered a positive rating of either '4' or '5'.

In the focus group discussions, participants listed a range of well-being outcomes during the sessions, including:

*'Feel alive and switched on'*

*'Makes me feel good'*

While following classes, participants noted a range of positive outcomes in this domain, including:

*'After the class I feel confident, buoyant - I want to do more. I feel happy and energised though tired.'*

*'Before the class I feel down, by the time I finish the class my eyes are open and I feel better'*

Participants also highlighted the integration they felt in terms of both physical health and mental well-being, with one individual commenting in the focus group that:

*'Physically and mentally I am not well. The class makes me realise what is wrong and helps me do something about it. Makes myself happy... because a lot of the time I am not happy.'*

### Confidence Levels and Social Impact

A question about confidence levels in the Trinity Laban evaluation survey showed a strong positive impact, with 77% of participants answering '4' or '5' to the question: 'How would you rate the impact of the classes on your confidence levels (where 1 is no positive impact on your confidence and 5 is a hugely positive impact on your confidence)?'.

The social element of the class was emphasised in the Trinity Laban evaluation survey as a particularly enjoyable feature of the sessions (when asked an open question on what participants enjoyed most about sessions, 67% of respondents

listed the experience of 'being around other people' or similar). Similarly participants commenting in the focus groups also noted how the social aspect of the group proved to have the 'most powerful' impact of all e.g. 'I really love to see people and to interact. It makes me feel very good.' while another participant stated that the most important reason to come along to sessions for this individual was

*'[the] ability to get out and to meet people and see different parts of the city'*

It is interesting to note that in the general comments section at the end of the Trinity Laban evaluation survey and in the focus groups, several participants noted that they would love to 'interact with other groups' or to include more people in the group, suggesting that participants would like to see the social dimension to the programme expanded even further.

#### Artistic Quality and Creative Engagement

Responses in this field were extremely positive. 100% of all participants stated that they found sessions to be either 'absolutely' or 'somewhat' 'inspiring', 'exciting' and 'meaningful'. Similarly 100% of participants stated they 'definitely agreed' or mostly agreed a) that the teaching/facilitation is 'high quality', b) that the teaching/facilitation supports the individual to 'develop their ability' and c) that participants' 'individual needs are met by the teaching/facilitation offered.'

In response to the question 'Do you feel your input and ideas are listened to and acknowledged in the sessions?' 67% said 'yes, definitely' and 33% said 'sometimes'. One participant also noted in the comments that s/he particularly valued this creative freedom, stating:

*'I like having the space to create my own dance.'*

One participant in a focus group discussion highlighted the value of having a concrete artistic goal for the sessions:

*'I liked it when we were doing sequences to Romeo and Juliet – [it was] nice'*

*working towards something and giving something a name. it was quite nice to feel as though we were working towards something.'*

This sense of creativity had powerful physiological benefits for one participant, who commented in the focus group that:

*'The creative [work]... creates a narrative in our dance exercises which connects up part of our brain and movement which wouldn't get connected'*

### Access & Progression

The physio evaluation survey recorded that no participants experienced difficulties in accessing the sessions (including transport, getting into the building and the convenience of the class time), although later in the survey one respondent requested some support with funding for transport to and from the sessions.

The level of 'stretch' (in terms of challenge and progression) felt by participants was felt to be just right, with the vast majority (89%) of participants saying classes were 'at the right level'. Participants went on to comment in the focus group discussions that

*'All of it does [stretch me]. Sometimes its hard work. Yes, there are some difficult things [but] difficult things have got less difficult.'*

*'Gives [me] ideas of things I need to work on. I learn things about my body and its limitations. It increases my body awareness.'*

100% of respondents stated that they would like to 'keep going with dance (at Trinity Laban or elsewhere)' and 100% of participants also stated they would 'recommend this group to a friend'.

### Summary of Findings

- Participants reported a range of positive health outcomes, with a 100% of participants noting a positive impact on their physical health through attending.

- Other positive health outcomes reported include weight loss, enhanced fitness and increased consumption of fruit and vegetables, improved balance, enhanced strength and having more energy.
- Respondents similarly noted that attending had a positive impact on their psychological well-being, including feeling more positive, more 'switched on' and 'buoyant, with sessions improving individuals' stress management.
- The holistic integration of health and psychological well-being was highlighted by one participant: that one fed the other.
- Classes have had a strong impact on participants' confidence.
- The social aspect of sessions was highly significant for many participants, with several requesting that this aspect of sessions might be expanded by enlarging the group or finding ways to connect with other such groups.
- The creative aspect of the sessions was strongly valued by participants and, for some participants, expressly enhanced their psychological and physiological outcomes.
- Respondents noted that access (in terms of transport, building access etc.) to sessions was generally very good.
- Participants reported that classes provided the right level of 'stretch' (in terms of the sense of challenge and progression offered).

## Conclusions

This service evaluation suggests that it is feasible and desirable for participants with ABI or stroke to attend a dance class in the community. This is indicated by the positive experiences highlighted in the qualitative data as well as the fact that several participants returned for 2 or more terms while 2 others progressed on to other regular dance classes at Trinity Laban. On the other hand the quantitative data also flags up some of the challenges to achieving regular attendance by participants. The qualitative results suggest that participants may benefit from improvements in fitness, strength and balance which agree with studies that have explored the benefits of dance in other populations.<sup>19,20,22,23,24</sup> Quantitative outcome measures to capture these benefits were not used during the first 5 terms of the class but would clearly need to be introduced. The psychological impact of ABI and stroke is



highlighted by the pre term SF-36 mental component results. Participants noted the positive impacts of the class to their psychological well-being and there is some indication that the dance class may additionally help them realise functional improvements and improve confidence. The SF-36 results however did not suggest any change pre and post class. The qualitative data suggest that social and creative features of the class are also important to the participants. This is of particular value in a population that are at risk of isolation due to their conditions.

## **Discussion**

This service evaluation has indirectly flagged up the challenges of objectively capturing the benefits of a dance class for this population. Some participants were unable to complete a full term of classes or were not present at the final class of term and therefore did not complete the end of term measures. Nevertheless the qualitative results suggest that a balance measure should be introduced and in the current term of the class the timed up and go (TUAG) and the balance confidence scale are being trialled. In the future an activity monitor (pedometer or accelerometer) may provide more objective evidence of fitness benefits. The qualitative results suggest possible benefits in a number of psychological and emotional parameters including confidence. The results of the SF-36 however do not support this. It may be that additional measures to capture these benefits may be required. The Warwick-Edinburgh Mental Well-being Scale is currently being trialled.

## **Implications for practice**

The class will continue to be offered at Trinity Laban, in order to support the current regular participants, with ongoing efforts to secure funding. Efforts to set up a satellite class in a different area of London are also underway which may support some of those participants who found the distance to access class in Deptford was too great. Both of these efforts will hopefully be supported by the results of this service evaluation. The attendance data has also led to discussions of the need to seek ways to recruit more participants to the class and ways to reduce some of the challenges of attending such as transport. A proposal for a formal research study is being discussed and will be informed by this service evaluation. A systematic review



of the literature has been commenced to support this (available separately). A review of outcome measures relevant to this population and this exercise option will need to be part of that review.

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